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THE WAGES OF UNSKILLED LABOR IN THE UNITED STATES, 1850-1900

A DISSERTATION

SUBMITTED TO THE FACULTY OF THE GRADUATE SCHOOL OF ARTS AND LITERATURE, IN CANDIDACY FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

(DEPARTMENT OF POLITICAL ECONOMY)

BY
EDITH ABBOTT

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THE JOURNAL
OF
POLITICAL ECONOMY

JUNE — 1905

THE WAGES OF UNSKILLED LABOR IN THE UNITED STATES 1850–1900

The wages question is one of the economic problems that have a never-waning interest alike for the layman and the scientist. However different their points of view may be, we yet find the business man, the politician, the economist each as much interested as the other to know precisely what the facts in the case may be. Do they show that the working classes have shared as they should in the benefits of a half-century of phenomenal industrial progress? Complaints have not been wanting that the laboring-man's share in these stupendous industrial gains has been pitifully small and mean;[1] that the development of the machine system has tended to reduce labor to a uniform and very low degree of skill, and to depress the wages of all toward the lower wage-level of the unskilled.[2]

[1] We find, for example, the preamble of at least one trade-union constitution declaring that, in spite of the material splendor of the age, the wage-earners are poorer today than ever before. ("Constitution of the International Brotherhood of Electrical Workers," quoted in the *Report of the Industrial Commission*, Vol. XVII, p. 143.)

[2] This was Marx's contention in the *Manifesto*. "Owing to the extensive use of machinery . . . . [the workman] becomes an appendage of the machine, and it is only the most simple, most monotonous, and most easily acquired knack that is required of him. . . . . In proportion as the repulsiveness of the work increases, the wage decreases." — *Manifesto of the Communist Party*, English translation, 2d ed., p. 12.

The most important question connected with the progress of the working classes is, however, no longer a subject for vague generalizations. Expert statisticians have shown that there has been a very real increase in wages[3] during the century that lies behind us; and the problem before us today is not to prove this fact, but rather to discover, if possible, how this increase in wages has been distributed among the working-classes themselves; to find out whether the lowest stratum of labor has had its proportionate share, or indeed any share, of these gains. Apart, now, from any question as to the correctness of Professor Falkner's statistical methods, tables like his, which show only the change in general wages,[4] without indicating in any way to what groups of laborers this increase has gone, leave us still questioning whether the higher grades of labor may not have gained proportionately more than the lower grades.[5] Such statistics fail to throw any light at all where light is most needed — on the condition of the great army of the unskilled; for it is here, after all, that the heart of the labor problem is found.

The skilled laborers, with their strong unions and their ability to earn wages which, whether a just or an unjust share of the product of industry, at any rate place them beyond the fear of want, do not make the same demands on public sympathy and attention as do the helpless masses of the unskilled — the ignorant and the incompetent, whose numbers constantly forebode unemployment, and whose wages, even when regularly earned, afford

[3] See the work of Professor Falkner in *Senate Report* No. 1394, Finance Committee, Vol. I, Tables 37 and 39, better known as the "Aldrich Report;" and the work of Mr. A. L. Bowley, "Wages in the United States and Great Britain," *Economic Journal*, Vol. V, p. 369. While many persons would be unwilling to grant that wages had increased at the rate shown by either of these statisticians, yet the fact that they have actually increased will probably not be questioned.

[4] The Aldrich Report, *op. cit.*, shows an increase of more than 60 per cent. in general wages in forty years. These are the only tables of American wages for any considerable period of years, but they have not been generally accepted, owing to the use of questionable and defective methods in their preparation. See pp. 340 ff.

[5] "There are innumerable volumes of wage statistics containing averages so general, and confusing so skilfully all the different classes of labor, that it is next to impossible to make anything specific out of the material." — Robert Hunter, *Poverty*, p. 13.

but a precarious existence. The unskilled laborer is the man without education, technical training, dexterity, or exceptional strength. He is not hopelessly incapable, he is not crippled either in mind or body, but his whole equipment consists only of a fair degree of physical strength — for exceptional strength is a kind of skill — and a certain measure of plodding patience. No provision was made for teaching him a trade, and he lacks both the courage and the "divine discontent" which might lead him to try to master one for himself. He is the real "child of poverty," who ends life where he began it, without perhaps ever lifting his hand toward the next round of the ladder. He does work which requires no preliminary training, and which does not demand the possession, in any large measure, of such personal qualities as trustworthiness, judgment, or responsibility. Whether a common laborer, coal-wheeler, teamster, or a man policing a machine, he is in a high degree an unspecialized worker, who is not really bound within the limits of any industrial, or even occupational, group. He is a kind of a free-lance in the labor world, a man who hunts for a "job" irrespective of its character.[6]

Unskilled has come to be in a measure synonymous with unorganized and underpaid. A working-class leader recently confessed that "in this question of the unskilled lies the very essence of the trade-union problem."[7] And we are told by

[6] It is, of course, very difficult to draw the line between skilled and unskilled, and Mr. Bowley has, in the following definition, come nearer success than anyone else that has tried: "It is no longer always possible to label a particular man categorically as skilled or unskilled. There is still to a certain extent, however, the distinction between the man who has learned a trade — called in trade-union language a 'journeyman' or 'tradesman' — and the man who does only unspecialized work; and it is still the case that in any large workshop there will be found two groups of men corresponding to these two classes; for instance, a blacksmith has his striker, a bricklayer his laborer, a riveter his holder-up, a plumber his mate, and an erector his laborer." — *Wages in the United Kingdom,* p. 23. Mr. Mitchell, however, does not place "helpers" in the unskilled class, but in a second and rather anomalous group. His classification is (1) unskilled laborers, (2) assistants of handicraftsmen, (3) skilled handicraftsmen, (4) superintendents. — *History of the Greenbacks,* p. 301. See also Marshall's discussion of the difference between skilled and unskilled, *Principles of Economics,* 4th ed., pp. 284–87.

[7] John Mitchell, *Organized Labor,* p. 167.

students of its causes and conditions that the problem of poverty also lies here.[8] It is among this class that the evils of unemployment are greatest. Much of the work done by the unskilled is in a high degree seasonal. The dock-hand, the quarryman, the great army of laborers and teamsters in the building trades must, many of them, look for "odd jobs" during the winter. Moreover, they feel constantly the pressure of competition, for behind the unskilled is the whole "reserve army of industry,"—the immigrants, the vagrants, and the "unemployable," men and women "either mentally or physically too weak to earn a living."[9] It is among this class that the question of the "living wage" becomes a vital one. Those who belong here seem to move always along the shadowy line that separates independence from pauperism—a line which, without warning, shades off now into the one and then back to the other. To the condition of this class a larger share of attention should be directed. Ignorant, incapable, and for the most part unorganized, they cannot help themselves, and society must face the question of doing something to help them, if it would learn the first lesson in solving the problem of poverty. It must not be forgotten that the unskilled are a dangerous class; inadequately fed, clothed, and housed, they threaten the health of the community, and, like all the weak and ignorant, they often become the misguided followers of unscrupulous men. The problem of the unskilled is one of large significance, and the most important question connected with it is that of wages. We cannot know how men live unless we know what they earn. It is equally important to know whether or not their earning power has

[8] Mr. Rowntree (*Poverty*, p. 120) estimates that 51.96 per cent. of the cases of those in primary poverty are caused by regular work, but low wages. Hobson (*Problems of Poverty*, p. 227) says: "The great problem of poverty resides in the conditions of the low-skilled workman. . . . . He cannot organize because he is so poor, so ignorant, so weak. Because he is not organized he continues to be poor, ignorant, weak. Here is a great dilemma of which whoever shall have found the key will have done much to solve the problem of poverty." Mr. Hunter (*Poverty*, p. 56) believes that it "can be assumed that the problem of poverty in this country is in ordinary times confined to a certain percentage of the unskilled laborers who have employment, to most unskilled laborers without employment, and to many unemployed skilled workers."

[9] Canon Barnett, *Economic Journal*, Vol. XII, p. 383.

been increasing, and at what rate. If there has been no progress, or if the rate of progress has been proportionately small — these are facts that should not be neglected.

In the present study an attempt is made to arrive at an exact estimate of the change in the wages of unskilled labor in the United States during the latter half of the last century.[10] Such a study is thought necessary for two reasons: (1) because of the light it may throw on the condition of this lowest and most depressed group of the laboring-class; and (2) because it is believed that the only proper way to treat wage statistics is to study separately the wages of laborers of the same grade of skill. A history of the wages of unskilled labor is, therefore, the first step toward a complete history of wages.

Reserving until a later portion of this paper a discussion of the reasons for these last statements, it should be said here that a general average of the wages of men of all grades of skill, when the range of wages must necessarily be very great, is an attempt to average things that cannot be averaged — like Mayo-Smith's

[10] Although no statistical study of unskilled labor for any considerable period of years has yet been made, the importance of a separate treatment of the wages of this class has several times been pointed out. Mr. Bowley (*Economic Journal*, Vol. VIII, p. 479) says: "Wages of different classes of working-people are continually changing at different rates, just as are the prices of different commodities. Special causes affect each industry and each wage group." See also the same author's *Wages in the United Kingdom*, pp. 23, 24. Professor Carver (*Publications of the American Economic Association*, 3d series, Vol. IV, p. 149) has called attention to the fact that "the increase in wages is not so apparent in the lower as in the higher grades of labor." Professor T. S. Adams (Adams and Sumner, *Labor Problems*, p. 513) makes the statement that "candid students doubted whether the total body of wage-earners — taking into account the slow progress and large numbers of agricultural and unskilled workers — were very much better off than they had been about 1870." Mr. Mitchell (*History of the Greenbacks*, chap. 5) makes a separate estimate of the wages of unskilled labor for the Civil War period, and Mr. Swank does the same thing for the iron and steel industry in 1880 (*Tenth Census*, Vol. II, p. 745 and tables following). A similar classification is used for some tables in the *Eleventh Census*. See, for example, the tables on pp. 134 and 206 (*Eleventh Census*, "Manufacturing Industries," III). Mayo-Smith also notes the value of this method of treatment (*Quarterly Journal of Economics*, Vol. II, p. 399). For the importance of a study of the unskilled, see Hobson, *Problems of Poverty*, chap. 11; Mitchell, *Organized Labor*, chap. 20; and Hunter, *Poverty*, chap. 1 *passim*. In Appendix C of the same volume Mr. Hunter estimates the current wages of this class.

example[11] of an attempt to average a bushel of potatoes and a pound of butter. Mr. Bowley illustrates[12] the worthlessness of such an average by showing the absurdity of an average income derived from the incomes of a group which included millionaires and ordinary workingmen. Here the millionaires' incomes, as Mr. Bowley points out, are given undue weight and importance, for "a single millionaire can counterbalance thousands of ordinary workingmen." The difference is only one of degree, when it is attempted to average the incomes of highly skilled and unskilled laborers; in either case the resulting average is a meaningless term. When, however, an average is taken of the wages of laborers of the same grade of skill — where there are no marked differences between the highest and the lowest wage — the objection to the other averages is no longer valid, since no extremes are present which can be given undue weight. It is believed, then, that a series of averages of the wages of unskilled labor for a long period of years will furnish information regarding the condition of this group of wage-earners, and will, at the same time, show the correct movement of wages in this class.

The first test of the value of any study of wages must be the reliability of the data on which it is based; for if the facts are not trustworthy, a study based on them is obviously useless. It is precisely for this reason that it is so difficult to arrive at satisfactory conclusions respecting the trend of wages. "It is commonly said," writes a competent English statistician, "that the material for wage statistics is conspicuous by its absence, and most authors who need such figures to illustrate other subjects are content to quote one or two estimates covering a very small part of the field."[13] The question to be considered, then, at the outset of such a study as this is the character of the data available for a study of the wages of unskilled labor in the United States. In the first place, they can be found only in government publications. Valuable wage statistics must be collected from *bona fide* pay-rolls, and can be obtained on any adequate scale only through

[11] Mayo-Smith, "Wage Statistics and the Next Census," *Quarterly Journal of Economics*, Vol. II, p. 399.

[12] A. L. Bowley, *Elements of Statistics*, p. 125.

[13] A. L. Bowley, *Wages in the United Kingdom*, p. 10.

official investigations. American wage statistics are found chiefly in (1) the Federal Census, (2) the publications of the Department of Labor, (3) the reports of the Bureaus of Labor and Industrial Statistics in many of the states, and (4) the well-known report made in 1893 by the subcommittee of the Senate Committee on Finance—better known as the "Aldrich Report."[14] All of these statistics have already been carefully described and criticised by Professor Bullock,[15] but it seems necessary for the sake of completeness to give a brief discussion here of each of these sources of data.

The data furnished by the Census from decade to decade differ widely in value. They are (1) the statistics collected in connection with the Census of Manufactures, (2) some data on wages in special occupations for the year 1860, and (3) two special reports, the one prepared by the late Joseph D. Weeks for the Tenth Census, and Professor Dewey's recent report for the Twelfth. The wage statistics given in the Census of Manufactures from time to time are of very limited usefulness indeed—in fact, their chief value is to furnish estimates of the "labor cost" in manufacturing industries, and in the Seventh and Eighth Censuses the statistics are tabulated, not as "wages," but as "cost of labor."[16] The facts are never given us at first hand, but instead

[14] While these are the most important collections of data, mention should also be made of the work of the Department of Agriculture in collecting statistics of farm wages. See especially *Bulletin No. 26,* Miscellaneous Series, U. S. Department of Agriculture, which summarizes the results of twelve statistical investigations. In recent years statistics of the wages of railway labor have been published in the *Annual Reports on the Statistics of Railways in the United States,* which are prepared by the statistician of the Interstate Commerce Commission.

[15] See the two very valuable articles, "Contributions to the Study of Wage Statistics," *Publications of the American Statistical Association,* Vol. VI, pp. 187–218, and "Wage Statistics and the Federal Census," *Publications of the American Economic Association,* New Series, Vol. I, pp. 342–68, which together cover the whole field very thoroughly. His special criticisms of the Aldrich Report and of other collections will be referred to in the proper connection.

[16] See *Senate Executive Documents,* Thirty-fifth Congress, Second Session, No. 39, which gives the Statistics of Manufactures for the Seventh Census, and also the *Eighth Census of Manufactures, passim.* The *Seventh Census,* p. xxiv, gives the following in its directions to enumerators, Schedule 5, Nos. 10 and 11: "Ascertain the average monthly amount paid for all the labor of all the hands, male

estimates of the average wage are given only for the single year in which the census was taken. This average was obtained by dividing the total amount paid out in wages by the number of employees, and, though commonly taken to represent the average wage, in reality "represents nothing but the result of the division of one number by another."[17] Such an average obviously could be compared from decade to decade only if the same methods were used in obtaining both dividend and divisor. The dividend is a comparatively easy figure to obtain, but it is almost impossible to find out what is to be considered the number of employees for the year. In the last census it was said that, "on account of the varying number of employees in a manufacturing establishment during a given year, due to change of employment and to seasonal trade conditions, it is becoming more and more difficult to establish a statistical term which will accurately represent the number of wage-earners to be used as a divisor.[18]" In fact, the method of obtaining the divisor has varied very greatly from census to census,[19] and as a result the directors of both the Eleventh and

and female, employed in the business or manufacture during the course of the year . . . . so that *cost of labor* is always to mean the amount paid, ... and the average number of hands and the average monthly wages are to be returned so that by dividing the latter by the former the result will show the average earnings of individuals." The *Twelfth Census* (Vol. VII, pp. cxi–cxii) is authority for the statement that "the figures obtained by the Census Office are essentially a labor cost, and the problem is to show the extent to which this labor cost can be identified with the 'rate of wages.'"

[17] Joseph D. Weeks makes this statement in his account of the wages paid in the glass industry in 1880 (*Tenth Census*, Vol. II, p. 6). Mr. Weeks says further: "The only circumstances under which a division of the total amount of wages received in any industry by the total number of men employed in that industry would be a correct statement of the earnings of the persons so employed are when the same number of men were employed during the whole year, and when, if the works were idle during any part of that year, the men were also idle, glass-making being their only occupation."

[18] *Twelfth Census*, Vol. VII, p. cxi.

[19] In the Seventh and Eighth Censuses the means of enumeration were exceedingly faulty, and the results were merely the vaguest estimates. In the Ninth, General Walker's first census, the average was as nearly correct as such an average could be made under the bureau as it was organized at that time. Radical changes in method were made in the Eleventh Census. The schedule was altered because it was thought that "the tendency of the questions used in 1880 was to obtain a number of employees in excess of the average" (statement of

the Twelfth Census of Manufactures have publicly called attention to the fact that these statistics must not be used to compare wages at the two different years.[20] Even if there were some method of obtaining an estimate of the divisor, there are two further objections to this average wage. First, because the average is too general; it represents all grades of labor and all sections of the country, and cannot be largely useful for this reason;[21] and, second, there is the further objection to the census statistics that they represent only the one census year, and that the real trend of wages can be shown only by wage statistics compiled annually. The wage-level during the last decade was practically the same in 1890 and 1900, though there is no question of the fall in wages after 1893; and while a line charted to show the real trend of wages for the decade would be in the shape of an inverted pyramid, it would be almost straight if charted for the decennial average.

There are then, to summarize, three objections to this average wage:[22] (1) The methods of obtaining it have varied so widely

Colonel Wright quoted in *American Journal of Sociology,* Vol. III, p. 360). In 1900, just a decade later, it was pointed out that the 1890 average could not be compared with the 1900 average, owing to the fact that a large number of general superintendents and managers were reported in 1890 in the wage-earners' class, and that the canvass of 1900 was made with greater thoroughness than in previous years and caused a large increase in the number of wage-earners receiving low wages, and thus lowered the average (*Twelfth Census,* Vol. VII, p. cxv). "It may be said that upon a matter of such importance it is the first duty of census officials to preserve a basis of exact comparison; but the sufficient answer, in the present instance, is that the obvious inadequacy of the schedules and methods of 1890 made necessary the changes" (*ibid.*).

[20] Mr. Stewart, in the *Eleventh Census* ("Manufacturing Industries," Vol. I, p. 14), said: "A comparison of the average annual earnings for all classes of employees as obtained from the reports of the two censuses is impracticable." Mr. North in the *Twelfth Census* (Vol. VII, p. cxvii) said: "Considerations of this character justify the Census Office in affirming with all possible emphasis that the attempt to obtain the average earnings from the census figures, or to establish a wage-mean at the several census periods, through the use of these statistics is a false use of them, and is not justified under any circumstances."

[21] The fact that this average is supplemented by averages from different industries and for different states makes it more valuable, but even then its use is very limited.

[22] For other criticisms of the census "average wage" see W. M. Stewart, *Publications of the American Economic Association,* New Series, Vol. I, p. 321;

from census to census that the average for one year cannot be compared with the average for another. (2) Such an average is a term so general, representing, as it does, all grades of labor, that it can furnish no definite information in regard to the condition of the laboring-classes. (3) Statistics collected only for one year in every ten cannot show the true movement of wages, for the greatest changes in the wage-level may not come during the census year, and are consequently overlooked. Such averages belong in Mayo-Smith's category of wage statistics which furnish "material for social polemics rather than social philosophy;[23] and certainly the director of the last Census of Manufactures was right when he raised the question "whether the knowledge that the result is faulty in the first place, and of doubtful utility in the second, ought not to exclude such averages from the census altogether."[24]

There have been a few happy exceptions to the generally unscientific treatment of wage statistics in the Census of Manufactures which should be noticed even though they are not useful for the purpose in hand. The first of these is the attempt at classified wage tables in 1890.[25] Here the method was one of proved scientific value, as it gave, instead of a single general average, the numbers of laborers in each industry to be found within certain wage limits, so that it would be possible to see what proportion of the employees were receiving different rates of wages. The returns, however, were not complete enough to warrant generalizations from them, since no adequate provision had been made for carrying on an investigation of such scope. Since in any event we have tables only for one year, they could not be used in a study

and in the same volume Professor Bullock's article, before cited, pp. 342–68. See also comments in the *Eleventh Census,* "Manufacturing Industries," Vol. I, p. 14; and Mr. North's very thorough criticism in the *Eleventh Census,* Vol. VII, pp. cxi ff.; Mayo-Smith's article on "Wage Statistics and the Next Census," *Quarterly Journal of Economy,* Vol. II, pp. 392 ff.; and an article by the present writer in this *Journal,* Vol. XII, pp. 340, 341.

[23] *Quarterly Journal of Economics,* Vol. II, p. 390.

[24] *Publications of the American Economic Association,* New Series, Vol. I, p. 299.

[25] Published in Part II of the "Report on Manufactures" in the *Eleventh Census.*

which involves a comparison of wages for different years.[26] In the Tenth Census also some interesting attempts were made to find a more satisfactory treatment of the statistics of wages. In Mr. Swank's "Report on the Iron and Steel Industry,"[27] instead of merely giving the average wage, tables were compiled which distinguished between the average day's wages for an ordinary laborer and the average day's wages of a skilled mechanic for the census year, and in the accompanying text an attempt is made to estimate the average daily wages of skilled and unskilled labor in different sections of the country — also, of course, for the census year only. In the same volume Mr. Weeks attempts an occupational classification for wages in his "Report on the Glass Industry,"[28] and in his later "Report on Coke."[29] The various classes of employees are given, the number employed, the "range" of wages — that is, the highest and lowest wages paid — and the average wage — statistics which furnish very valuable information for the census year, but which, since the same plan was not followed during other years, cannot be used to show the changes in wages from one period to another. It may, then, be said in all fairness that the Census of Manufactures has given us no wage statistics that can be used in tracing the movement of wages through a series of years. The average wage is thoroughly unscientific, and the other statistics, which are more valuable in themselves, are given only for a single year, and cannot therefore be useful for purposes of comparison.

There remain to be considered, then, the special reports and the statistics of average wages in special occupations which were among the returns in 1860. The latter can be dealt with very briefly. The average wages for four occupations[30] in the differ-

[26] Classified wage tables are certainly never as useful for purposes of comparison as they are to show the distribution of the wage-earning class as to incomes in any given year. This point is discussed more fully later on in connection with the Dewey Report.

[27] *Tenth Census*, Vol. II, pp. 745–68. Cf. also *Eleventh Census*, "Manufacturing Industries," Vol. III, pp. 134, 206, 228, 298, 338.

[28] *Tenth Census*, Vol. II, p. 1044. [29] *Ibid.*, Vol. X, Part II.

[30] Farmhands, day-laborers, carpenters, and "female domestics." — *Tenth Census*, "Mortality and Miscellaneous Statistics," p. 512.

ent states and territories are given, but they are very crude estimates that cannot be trusted to furnish any reliable information regarding the incomes of those occupations in the census year; and since there are no similar statistics in other censuses, they cannot, of course, be useful in computing the movement of wages.

Passing on, then, to a discussion of the two special reports, we find data of very great value for many purposes. For the Tenth Census Mr. Weeks prepared "the first great report giving wage statistics for a long period." [31] He collected from several hundred factories the average wage paid to each class of employees on their pay-rolls for the entire period covered by the records — in some cases fifty years. The objections to this collection of data may be summarized as follows: (1) The facts are never given at first hand. Instead of the actual rates of wages paid, an average wage is quoted for the different occupational groups in each establishment. (2) The method of computing the average is not given, nor is there any evidence to show that the same method was used by all the agents. (3) The number of employees is not given,[32] and no way, therefore, is open for determining the importance of any quotation. A weighted average for any group of wage-earners can obviously never be computed.

Aside from any criticism of the data, the report as a whole is open to the very serious objection that no conclusions are drawn

[31] Carroll D. Wright, *Bulletin de l'institut international de statistique,* Vol. VIII, p. 109. The report is Vol. XX, *Tenth Census.* For interesting criticisms of Mr. Week's work see also Mitchell, *op. cit.,* p. 377; Bullock, *op. cit.,* p. 351; and Mayo-Smith, *op. cit.,* pp. 396 ff.

[32] This omission was doubtless due to the impossibility at that time of carrying on an investigation of wide enough scope to include all of the important facts. Certainly the transcription of actual pay-rolls was not possible with the force then at the command of the bureau. That Mr. Weeks understood the importance of having the number of employees given is evident from the reports on special industries, which have already been referred to, and which were made for the same census. In connection with his report on the manufacture of glass, he says: "It is very easy to give an average of the different rates of wages paid; but to get at the real average rates — i. e., an average which shall consider not only the several rates, but the number of men employed at each rate, by a consideration of both of which the average rate can only be reached — is more difficult." — *Tenth Census,* Vol. II, p. 1044.

from these statistics. No summary of any kind is attempted, and the data remain a vast array of facts which have never been averaged or classified to make them throw any light whatever on the question of wages.[33] It is the statistician's work to show the significance of the data as well as to collect and tabulate them. Indeed, it is the statistician alone that can be trusted to draw intelligent deductions from them, and it is he, and not the layman, who must interpret them.

The other special report was prepared under Professor Dewey's direction for the Twelfth Census,[34] and is much more valuable from the point of view of statistical method. Unfortunately, however, it contains data only for two years — those at the beginning and end of the decade — so that it cannot be of service in an attempt to follow the movement of wages over a long period. The volume was designed "to promote a definite termination of the question whether wages have tended to increase or decrease during the decade."[35] When it was discovered that the average wage computed for the Census of Manufactures in 1900 could not be compared with the average wage in the Eleventh Census,[36] provision was made for a special report which should collect new data for both the years 1890 and 1900 — another open confession from the census itself of the failure of the wages statistics in the Census of Manufactures to show the real change in wages for the decade.[37] The preparation of the report was put in charge of an expert statistician, and the result is a valuable and thoroughly scientific contribution to the collection of American wage statistics. In criticising this volume, it must be borne in mind that the primary requisites of a collection of wage statistics are two: (1) the facts — that is, the actual rates of

[33] Mayo-Smith, *op. cit.*, p. 396, criticises the report severely for this reason. "It is," he says, "impossible from this volume to say anything about the income of the men in the manufacturing industries of the United States. From the point of view adopted in this article — namely, that the chief interest of wage statistics is social — the volume is a failure."

[34] Davis R. Dewey, *Employees and Wages* (Washington: The Census Office, 1903).

[35] *Twelfth Census,* Vol. VII, p. cxxv. [36] *Supra,* notes 19 and 20.

[37] For statements from the census on this point, see note 20.

wages paid and the number of persons to whom they are paid — must be given; and (2) there must be a satisfactory summary of the results. It has already been pointed out, in connection with the Weeks Report, that to anyone save the statistician the quotation of the actual rates is merely a hopeless array of figures, and it is for statistical method to find some simple expression which will reflect the truth contained in all the figures, and thus enable the mind to grasp their significance. Three methods have been devised for accomplishing this result — the classified wage table,[38]

[38] The form of the ordinary classified wage table is given below.

Rates per Week	Number	
	1890	1900
Less than $2	..	..
$2.00 to $2.49	7	5
$2.50 to $2.99	13	13
$3.00 to $3.49	6	4
and so forth		

the average, and the median, or median and quartiles. In the Dewey report we have, instead of the facts,[39] a series of classified wage tables — which is really only one method of summarizing the facts. In this case, however, the tables are too detailed to serve the purpose of a summary, extending, as they do, over nearly eight hundred pages, so that they are useful only as a substitute for the actual rates. The report also fails to fulfil

[39] Professor Dewey himself acknowledges the superiority of tables of actual rates, but points out some practical difficulties, in particular that of expense, that are in the way (*Employees and Wages*, p. xviii). It seems almost superfluous here to discuss the advantages of tables of rates of wages actually paid over the classified tables. The latter show the actual distribution of the laboring classes within certain wage limits, but they conceal some very important facts. Even when the unit of division is as small as 50 cents a week, the tables may show the same number of laborers in the same wage group, when wages have really been reduced. For example, the thirteen laborers in the $2.50–$2.99 class in note 38 remain in the same group for two different years, but the wages of all may have been reduced 49 cents a week, and such a reduction often means, in the unskilled class, a decrease of 5 per cent. in the week's income. The Dewey tables give us a close approximation to the actual rates, but the fact remains that they do not tell us the exact wage of a single employee in the United States. Classified tables can always be derived from tables of actual rates, but if the former alone are given, the latter can never be obtained. For further discussion of this point, see an article by the writer in this *Journal*, Vol. XII, pp. 345 ff.

exactly the other requisite of a thoroughly adequate collection of wage statistics: it does not furnish an adequate summary of results. The summary which is given attempts to make a brief comparison between the two years by using the median and quartiles.[40] Like the tables of classified rates, the median has, when supplemented by quartiles, the advantage of showing the distribution of the working classes about certain wage limits. For purposes of comparison, however, the median and quartiles are quite inferior to the average, since it is obviously easier to obtain definite results by comparing a single expression for each year than by comparing three. The tables in the summary will illustrate the futility of attempting to draw any conclusions from a comparison of three different points on the wage scale. More often than not the median and quartiles do not show the same change. Sometimes when the median indicates an increase, one quartile indicates a decrease, and the other no change; or when the median shows no change, one or both quartiles show an increase or decrease; and when the three terms do agree in showing the same change, they frequently do not show the same rate of change.[41] The textual analysis accompanying the tables does not give any more definite statements, and, on the whole, it may be fairly said that the report fails to give any positive information regarding the trend of wages during the decade.

While the Dewey Report may fall short of the ideal that

[40] That is, for the most important occupational groups in each industry the employees are arranged according to their wages, and the wages of the middle employee (the median) and of the employees one-fourth and three-fourths of the way up the wage scale (the two quartiles) are quoted. Within the limits set by the two quartiles are the wages of 50 per cent. of the laborers in this group. When the wages of the employees one-quarter, one-half, and three-quarters of the way up the wage scale are known, the condition of the group is very well explained. The advantage of the median, according to Professor Dewey, is that "employees at exceptional rates, either low or high, are not given an undue weight or importance as they are when the average is used" (*Employees and Wages*, p. xxvii). But it must be emphasized that the average that is defended in this paper is an average for a group in which there are no extremes to be given undue weight.

[41] In the article in this *Journal* before referred to (Vol. XII, p. 352) I constructed a table of results from the first of the tables in Professor Dewey's summary. In only seven cases out of twenty did the median and quartiles all point to the same result.

should be set in the matter of wage statistics, it is, nevertheless, the best report of the kind that has ever been published.[42] Its most conspicuous merits may be summed up as follows: (1) The wide scope of the investigation, the returns representing thirty-four industries and 720 establishments, many of which had more than a thousand employees. Data from so wide a field are, of course, presumptive evidence of the value of the generalizations drawn from them. (2) In the wage tables there is an occupational classification as well as a classification according to rates,[43] so that it is possible to compute the change in the wages of different occupational groups. (3) The unit of division for the wage groups is very small,[44] so that we are given the nearest possible approach to the actual rates of wages short of the actual rates themselves. (4) A valuable "establishment comparison" by which it is possible to show the "sort of changes that have taken place between 1890 and 1900 in individual mills and factories, and the relation of these changes to the general course of wages during the decade."[45]

When all has been said, however, as to the merits or defects of the report, the fact remains that, although it contains exhaustive and valuable data for the first and last years of the decade, it cannot be useful in a study of this sort which attempts to follow the movement of wages year by year for more than half a century.

To conclude this discussion of the census wage statistics, it may be said finally that the Weeks Report is the only volume of

[42] It seems hardly fair to compare the Dewey Report with the Aldrich Report, since the latter was an undertaking on a so much larger scale.

[43] This is a point of very great importance, since in many of the classified tables no occupational groups are given. The result is that, while such tables may show a larger number of employees in the lower wage groups in one year than in another, such a change may be due to changes in the manufacturing process, perhaps to the introduction of new machinery requiring the employment of a larger amount of unskilled labor than before, although the wages in the various skilled and unskilled occupations as such have remained unchanged.

[44] Fifty cents a week, as is indicated by the table in note 38 and the discussion in note 39.

[45] *Employees and Wages*, p. xxiii. This establishment comparison covers pp. 783–1141; see also pp. cv–cxiii.

the census which furnishes data that can be used in computing the wage changes through a long series of years.

Passing on now to the data found in the publications of the Bureau of Labor, the work done by the bureau prior to 1900 can perhaps be best described by a statement taken from one of the department publications.[46] It was said that the department had in its reports "from time to time presented large masses of original wage statistics; but these, being incidental to the general subjects of the reports, have usually been limited to particular periods, industries, or localities." In 1900 the department published as its annual report two volumes of data called *Wages in Commercial Countries*. The character of this report is briefly summed up in the preface: "It is only what it pretends to be — a compilation. . . . . The department disclaims all responsibility for the scientific value of the data compiled, except so far as they are taken from the previous reports and documents issued by it."[47] It seems unnecessary, then, since the most valuable data in these volumes have already been discussed, or will be discussed later in connection with the sources from which they were taken, to give a more detailed account of this report.

In 1898 the department published some statistics of the average rates of wages in twelve cities of the United States for a period of twenty-nine years.[48] The data covered twenty-five occupations, and in almost every city quotations for each occupation were secured from at least two establishments, and "the facts in most instances, in accordance with the rule of the department, [were] taken directly from the pay-rolls."[49] Data drawn from so narrow a field are not a safe basis from which to generalize, but it was thought that a series of averages from these data would be of interest in comparison with averages drawn from other data. These averages will be found in Table XIV, and, as the department itself explains, they are somewhat higher than they would be for the country at large, since they are for the large industrial centers only.[50] A further objection to the statistics in this *Bulletin* is

[46] *Fifteenth Annual Report of the Bureau of Labor*, p. 5.

[47] *Ibid.*., Vol. I, pp. 6, 7. [48] *Bulletin of the Bureau of Labor*, No. 18.

[49] *Ibid.*, p. 666. [50] *Ibid.*, p. 666.

that the number of employees is not given with the quotations. Except those contained in this *Bulletin,* the only data for any considerable number of years which the department has furnished are for the period 1890–1903, and are to be found in two *Bulletins.*[51] In 1900, data from 148 establishments, 26 industries, and 192 occupations were collected for the ten years from 1891 to 1900,[52] and in 1904 a very extended investigation was undertaken, the results of which are as yet largely unpublished.[53] A very useful summary of this last collection of data is to be found in *Bulletin 53.* No table was computed here from the data in the earlier *Bulletin,* since those in the later one covered the same period more adequately. Attention may be called here to the fact that the change in wages indicated by this last investigation is different from that of the earlier ones. *Bulletin 18,* for example, shows a decrease of 3 per cent. in wages between 1891 and 1896; *Bulletin 30,* a decrease of 2.07 per cent.; and *Bulletin 53,* an increase of 8.1 per cent. The change shown by the latest investigation is, of course, the correct one, but the question may fairly be raised whether investigations so limited in scope that their results cannot be trusted are really worth undertaking at all.

The statistics that have been published from time to time by many of the State Bureaus of Labor are of little use for our present purpose. To compute the movement of wages with a satisfactory degree of exactness, it is necessary to have quotations for successive years from the same establishment, and, of course, from the same state. It is, for example, quite impossible to make a correct estimate of the change in the wages of day-laborers, if data from Iowa are used for one year and data from New York or Pennsylvania the next. In very few states indeed has the Bureau of Labor compiled statistics of wages regularly enough to enable one to compute the wage movement even in that one state. The methods used in the collection and tabulation of data are often unscientific, and are frequently changed. Moreover, these

[51] *Bulletins 29* and *53.*

[52] These data are published in *Bulletin 29,* and the summary in *Bulletin 30.*

[53] They will be published in the forthcoming *Nineteenth Annual Report.*

methods vary so widely from state to state that it is a hopeless task to attempt to reduce the data to any uniform basis that will make it possible to combine them and make them throw any light on the trend of wages in the country at large, or even in any one section of it. All of this, of course, is far from denying that in some states — of which Massachusetts is a notable example[54] — the Bureau of Labor has done work of proved scientific value, and has collected valuable data relating to wages;[55] but it is none the less true that, as a whole, the statistics furnished by these bureaus render little, if any, assistance in an attempt to trace the continuous movement of wages in this country.[56]

The four volumes of the Aldrich report on *Wholesale Wages, Prices, and Transportation*[57] are our one great collection of wage statistics. On March 3, 1891, a Republican Senate directed its Committee on Finance "to ascertain in every practicable way, and to report from time to time . . . . the effect of the tariff laws upon the imports and exports; the growth, development, production, and prices of agricultural and manufactured articles at home and abroad; and upon wages domestic and foreign."[58] By a fortunate chance, a work that was undertaken for a partisan purpose, and was used upon its publication to serve partisan ends, has become an invaluable source of information to students of economics and statistics. The motives of those who projected the report, and the conclusions which were reached by the committee,

[54] See particularly the Massachusetts reports for 1884 and 1885, in which there are most valuable data which form, in fact, a complete history of wages in that state from 1752 to 1885.

[55] For a more detailed comment on the work of these bureaus, see Bullock, *Publications of the American Statistical Association,* Vol. VI, pp. 198–202.

[56] For detailed criticisms of the work of the state bureaus, see an article by Mayo-Smith on "American Labor Statistics," *Political Science Quarterly,* March, 1886; and Professor Bullock's "Contribution to the History of Wage-Statistics," *Publications of the American Statistical Association,* Vol. VI, pp. 198–205.

[57] *Senate Report No. 1394,* referred to in note 3, *supra.* Two volumes and a half of this report are devoted to wage statistics. A "Report on Retail Prices and Wages from 1889–1891" (*Senate Report* No. 986) was published in 1892, but the former report is the one commonly referred to as the "Aldrich Report."

[58] *Senate Miscellaneous Documents,* No. 59.

have been challenged often,[59] but there has never been any question as to the reliability of the data from which those conclusions were drawn and for which the report is now chiefly valuable. These data were collected by the Department of Labor,[60] but the chief of the department was careful to disclaim any responsibility for "any deductions which may have been or which may be drawn from them."[61] The unanimous verdict of statisticians has been that these data are unimpeachable.[62] They are accurate copies of *bona fide* pay rolls. The facts are placed at our disposal — the number of employees and the precise rates of wages paid — and if the conclusions in the report are questioned, we are not estopped from drawing new ones for ourselves.

The data in the report were averaged under the direction of Professor Falkner, who for the first time applied the "index number" system to wage statistics. The conclusions drawn regarding the movement of wages are to be found in the now famous wage tables in the first volume of the report.[63] In the table for all industries the index number was 100 in 1860, 87.7 in 1840, and 160.7 in 1891 — indicating a rise in wages of 60.7 per cent. since 1860, and of 83.2 per cent. since 1840.

The methods employed in the preparation of the tables have

[59] That the Aldrich Report was partisan in its purpose there is no reason to doubt. In an article in the *Forum* (Vol. XIV, p. 242), written just before the publication of the report, Senator Aldrich uses the latter as the basis of a campaign argument. In this article he says: "To test the accuracy of these allegations (that the McKinley Bill would raise prices and depress wages) was the purpose of the recent exhaustive investigation of the Senate Finance Committee into the course of prices and wages. . . . . Not one Democratic prediction of evil has been fulfilled, not one Democratic assurance of injurious results has been verified."

[60] The wages data extend over nearly thirteen hundred pages. They represent twenty-two industries and eighty-eight establishments. There are in all more than eight hundred wage series, many of which extend back for a period of fifty years.

[61] Carroll D. Wright, *Bulletin de l'institut international*, Vol. VIII, p. 109.

[62] Mr. Bowley says, for example: "They form a mine of information and will be used by many students for many purposes. . . . . My quarrel is not with the facts, but with the deductions drawn from them." — *Economic Journal*, Vol. V, p. 369. See also Mitchell, *History of the Greenbacks*, pp. 280 ff, and Spahr, *The Present Distribution of Wealth*, p. 103.

[63] Aldrich Report, Vol. I, pp. 111–74, "Relative Wages for 52 Years."

been severely criticised by other statisticians, and the tables themselves are not generally accepted as indicating the correct movement of wages. When Mr. Bowley was in search of some American wage statistics which he could use in comparing the rates of increase in English and American wages, he rejected the Falkner tables entirely and laboriously reworked the percentages he desired directly from the table of exhibits.[64] Similarly, when Mr. Mitchell was attempting to estimate the effect of the greenbacks on wages, he came to the conclusion "that Professor Falkner's table of relative wages must be discarded altogether and a fresh table of relative wages . . . . laboriously compiled from the data published in the 'exhibits' of the Aldrich Report."[65] The verdict of the late Charles B. Spahr, who had made a most careful study of the report, was to the same effect — that it was necessary to throw away the work done by the committee's experts and return to the original reports made by the employers, ascertaining from them the aggregate and average wages paid at the dates of the greatest public interest."[66] More recently Professor Adams discarded the Falkner tables,[67] but he preferred to draw his conclusions from other and inferior data, rather than undertake the irksome task of computing new tables from the data in the report.

Before discussing the defects in the Falkner methods, it may be said, by way of summary, that two points seem to be clear regarding the report: (1) that the rate of increase in wages shown by the Falkner tables has not been accepted as the correct

[64] Bowley, *op. cit.*, p. 373. [65] Mitchell, *op. cit.*, p. 282.

[66] Spahr, *The Present Distribution of Wealth*, p. 109.

[67] Adams and Sumner, *Labor Problems*, p. 509. "Beginning with 1860 our record of wages in the United States is fairly complete, and the obstacle in the way of ascertaining their true movement is primarily one of method. In 1893, for instance, the Senate Committee on Finance . . . . made an investigation of the movement of wages and prices between 1840 and 1891, which, so far as the wage movement is concerned, is rendered almost wholly useless by fundamental defects in the method of combining the data. This Aldrich Report . . . . is often cited as authoritative, but it unduly exaggerates the rise of wages between 1840 and 1891, and on this it is necessary to draw our conclusions from other sources which, with respect to the accuracy and amount of the original data, are less satisfactory than the Aldrich Report itself."

rate of increase;[68] (2) that the data given are wholly reliable, and the trend of wages for any or all groups of laborers can be obtained only by computing new tables from the original exhibits.

In the present study new tables have been computed which, it is hoped, will aid those who wish to follow the course of the wages of unskilled labor in the United States. It is believed that tables of this sort will be of more service than a series of such vaguely general estimates as result from averaging indiscriminately the wages of all grades of labor. Attention should, perhaps, be called at the outset to the following points with reference to these tables:

1. Great care has been taken to avoid those defects in method which have rendered the Falkner tables almost useless. The differences between the methods used and the Falkner methods will be noted in a later paragraph.

2. Other data than those in the Aldrich Report have been utilized, one table for the largest occupational group in this class — that of day-laborers[69] — has been computed from the Weeks Report.[70] Other tables are based on data published by the Department of Agriculture[71] and the Department of Labor.[72]

3. The tables represent not merely, as did the Falkner tables, the wages of employees in manufacturing establishments, but also the wages of miners and agricultural laborers.

4. By using data from a variety of sources, more light is

[68] With regard to this point, Professor Bullock's conclusions are also of interest. After studying the report carefully from the point of view of statistical method, he said that, "while a study of the actual quotations will convince the reader that there has been a very material increase in wages in these seventy-five establishments since 1860, it is impossible to accept the computations of the report concerning the rate of increase." — *Publications of the American Economic Association*, Vol. VI, p. 218. There is, of course, another side to the question, but it is undeniably that of a minority. Colonel Wright, for example, says: "In this publication we have therefore trustworthy facts for wages and prices in this country for a period of fifty-two years . . . . and from this report, notwithstanding its faults, one can ascertain, both for specific cases and in general, the true course of wages for the whole period." — *Practical Sociology*, p. 228.

[69] See Table XII, "Wages of common laborers from 1829–1880."

[70] *Tenth Census*, Vol. XX, *supra*, p. 332.

[71] See Table XIII "Agricultural Wages in the United States 1860–1903."

[72] See Table XIV "Wages in Three Unskilled Occupations from 1875–1898," and Table XV "Wages of Common Laborers 1890–1900."

thrown on wages in the country at large than would have been possible had only the data in the Aldrich Report been utilized,[73] since the returns in the Aldrich Report are almost exclusively from the Atlantic seaboard.

5. The table for the most important occupational group has been brought down to 1900 by using the data furnished by the Bureau of Labor.

6. Separate tables have been computed from the data from each source, so that any question as to the reliability of the statistics from any one source will not result in the rejection of all the tables.

7. Tables of money wages and tables of index numbers have both been given. The Falkner tables included only the latter, and while index numbers show whether the wage for one year has increased or decreased in comparison with some other year, it is impossible to learn from such tables what the wage really was at any time — an important fact if information regarding the actual condition of the laborer is desired.

Having explained the general character of the tables, the next step is to point out wherein the methods used in computing them differed from Professor Falkner's.

1. Averages have been taken only for the wages of laborers in the same occupational groups or of the same grade of skill. There are no such averages as those in Professor Falkner's tables, representing the wages of all kinds of labor, skilled and unskilled, and not discriminating between the wages of men, women, and children. This raises again the general question of the value of averages — one which has already been discussed in part in connection with the Dewey summary. It was there shown that some simple substitute for the great mass of individual quotations was necessary, and that for purposes of comparison the average was most useful; as Professor Dewey has expressed it: "The advantage of the average is the ease with which it can be used for

[73] In the Aldrich Report there are returns only from the following states: New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Ohio. The report has been criticised for showing the course of wages in but one section of the country. See Mitchell, *History of the Greenbacks*, p. 285.

formulating a statistical proposition in a single number."[74] The well-known objection to the average is that it gives undue weight to extremes, and thus often becomes a misleading term. This is clearly a valid objection to an average wage for all occupations and all industries. The extremes represented by the lowest wage paid in the unskilled class and the highest wage of the skilled workers are so great that an average taken for all is an unreal term which is probably very far from representing the wages of any large proportion of the laboring class. Such an average obviously does not reflect the condition of the great mass of workingmen. Nor is such a term useful for purposes of comparison, certainly not as a means of measuring with any useful degree of precision variations in the wage-level. A marked change in such an average may be due, not to a *bona fide* increase or decrease in the wages paid in any occupation, but to a change in the proportions of skilled and unskilled labor employed. Commissioner Wright once said of such an average: "It is not scientific, but it is indicative of something."[75] The "something" in the case of the Falkner tables is that wages have increased; but certainly the rate of increase indicated by the tables cannot be relied on as the correct rate of increase.[76]

On the other hand, an average of the wages of laborers in any well-defined occupation in which there are no marked differences in skill[77] is a term which fairly reflects the condition of the group as a whole. There are no extremes here which can make the average misleading — a fact particularly true of the unskilled

[74] *Employees and Wages,* p. xxiv.

[75] *Quarterly Journal of Economics,* Vol. VI, p. 178.

[76] Professor Bullock (*op. cit.,* pp. 217, 218) says: "While a study of the actual quotations will convince the reader that there has been a very material increase of wages in these seventy-five establishments since 1860, it is impossible to accept the computations of the report concerning the rate of increase." It is to be noted that Professor Bullock says a study of the data, and not a study of the tables, will show that there has been an increase in wages, so that his verdict would seem to be that the tables are indicative of nothing.

[77] The late Sir Robert Giffen, in calling attention to this point, says: "A good deal sometimes turns upon the composition of the average, upon whether it is made up of great extremes, or whether the individual elements depart very little from the average." — *Essays in Finance,* Second Series, p. 378.

occupations in which the range of wages is very narrow indeed, and no single quotation departs very far from the average. For the same reason, an average for the occupations requiring the same degree of skill is also a good statistical term, and one which represents the condition of a larger group of wage-earners. Even unskilled laborers vary as to efficiency, and it may be that a change in the average is due to a change in the proportions of more or less efficient men employed. If in one year the returns show that three men are employed at $1.50 and two at $2, and the next year there are three at $1.50 and five at $2, while the wages paid for doing a certain kind of work may not have changed, yet here the average will show a slight increase. Similarly the discharge of an old hand and the taking on of a new one may indicate a fall in wages, when the change has in reality been due to what has been called the "personal equation." After all is said, the fact remains that every average is a fictitious term.[78] It may fail to represent the wages actually paid to any single laborer. But the necessity of using some term that will summarize the individual quotations has already been pointed out, and it has likewise been sufficiently argued that for the purpose of comparing wages in any two years the average is the best term yet devised, and that, when taken for a group like the unskilled, in which there are no extremely high wages, it is a valid and valuable scientific term.

2. Instead of simple arithmetic averages, each quotation has been given an importance, in averaging, determined by the number of men actually employed at that rate. When Professor Falkner took a simple average of all of the quotations, it resulted, not, as he maintained, in "giving each an equal weight in the result," but rather, as Professor Bullock pointed out, in an entirely arbitrary method of weighting which gave "to the quotation representing the wages of any single laborer an importance that varied inversely with the number of persons engaged in his branch

[78] Dr. Venn has put this very well in his very admirable paper on the "Nature and Use of Averages," *Journal of the Royal Statistical Society*, Vol. LIV, p. 447: "Every sort of an average is a single fictitious substitute of our own for the plurality of actual values existent in the results which are naturally or artificially set before us."

of employment."[79] That a simple average of all the occupational groups within an industry leads to erroneous conclusions can be easily shown. For example, in the stone industry,[80] if the number of persons represented be quoted with the index numbers, we have the following results:

	1860	1891
Foremen	100 (2 men)	234.8 (9 men)
Quarrymen	100 (267 men)	170.8 (274 men)

Here to average simply the greatly increased wage of nine men and the wages of 274 men obviously produces an incorrect result. It does not give an equal importance to the wages of 283 men, but rather gives a much greater importance to the nine men than to the 274.[81]

[79] Bullock, *op. cit.*, p. 214. This is further explained by the statement that "many of the five hundred wage series represent the wages of a single man, while others represent the wages of groups that include scores and even hundreds of workmen. In averaging the quotations, therefore, it is evident that the importance given to the wages paid to each individual laborer varied inversely as the number of persons included in the series to which he belonged." For further criticisms on the same point, see Mitchell, *op. cit.*, p. 282, and the caustic pamphlet by F. C. Waite, *Wages and Prices*, pp. 13 ff.

[80] *Aldrich Report*, Table 37, p. 163, the index numbers for Establishment 79.

[81] It should, however, in fairness be said that this may be an extreme case, for in Establishment 80 in the same industry we have the following results:

	1860	1891
Foremen	100 (4 men)	157.6 (7 men)
Quarrymen	100 (117 men)	160.2 (195 men)

The fact that there are, however, establishments in which there are marked differences in the rate of increase in the different wage series is a sufficient objection to taking a simple average of them. Further to illustrate this point, a comparison of the different series in Establishment 2, the first in which there are such marked differences in the rates of increase, is of interest:

	1860	1891
Brewer	100 (1 man)	375.0 (1 man)
Cooper	100 (8 men)	185.4 (6 men)
Foreman	100 (1 man)	195.1 (5 men)
Laborers	100 (26 men)	222.4 (41 men)
Teamsters	100 (4 men)	145.8 (10 men)

According to Table 39 of the Aldrich Report, the index number for the whole

Professor Falkner took a weighted average for all industries in addition to the simple average. In this second average each industry was given an importance determined by the number of persons shown by the census to be engaged in it. Such a method of weighting, however, could be correct only if the establishments taken to represent each industry were highly typical ones, and there is certainly no evidence to show that this was the case.[82]

3. The quotations for both January and July, instead of those for either month alone, have been used in obtaining the average for the year. In the exhibits in the Aldrich Report the pay-rolls are copied for two months, January and July, of each year. For the Falkner tables only the January wages were used, except for industries in which the July wages were regarded as more typical, and then only the July wages were averaged. A further difficulty is that the report does not indicate when the July wages were substituted for January wages. Whether this failure to use half of the quotations really made any difference in the estimated rate of increase, it is not easy to demonstrate, but it has needlessly laid the report open to criticisms.[83] In the present tables all of the

establishment was on the basis of 100 in 1860, 224.7 in 1891. These index numbers were, of course, taken from simple averages. If averages had been taken in which each quotation was given an importance determined by the number actually employed at it, the index number would have been only 203.3 instead of 224.7 for 1891. In Establishment 1 the differences in the rates of increase in the different occupations are not so marked, yet even here the increase in foreman's wages is 82.9 per cent., while for laborer's it is 37 per cent. and for woodworker's 28.1 per cent. For the whole industry the Falkner index number for 1891 is 137.9, while, if a weighted average had been taken, it would have been 122.7.

[82] Mr. Bowley thinks there is sufficient proof that the establishments were not typical, when in one industry (Books and Newspapers) the rate of increase in wages in one of the establishments given is 42 per cent., in another 56 per cent., and in still another 47 per cent.— *Economic Journal*, p. 371. Mr. Spahr also calls attention to the fact that many industries were not thoroughly investigated, that "for the metal works and cotton factories the returns covered many establishments and many hundred employees, while for stores the returns covered but one dry-goods store and one grocery, employing together less than thirty clerks." — *The Present Distribution of Wealth*, p. 108. See also Waite's pamphlet, *op. cit.*, pp. 9, 10.

[83] Mr. Waite charges that this tended to exaggerate the rate of increase. He shows, for example, that in the case of bricklayers (Establishment 12) the January quotations showed a 58 per cent. increase between 1860 and 1891, while the

quotations given for the year were used. In obtaining the wages of laborers, for example, an average was taken, according to the method just described, of the wages of all the laborers in each establishment. The question then arose as to the number of employees whose wage this average represented. This was evidently neither the number of men employed in January or in June, but the average of the number employed for the two months.[84] This number multiplied by the average wage gave, of course, the total amount paid out in wages during the year to "laborers" in that establishment. An average was then taken of the wages of "laborers" in the twenty-two establishments employing them, the wage in each establishment being again given its correct importance. In this way all of the quotations were utilized, and it is believed that the method used resulted further in giving to each its true importance — an importance determined by the number of men who were shown by the records to have actually received it.

4. Only the wages of men are represented in the tables. From an economic point of view, the wages of women and children are not affected by the same forces as are the wages of men, and the movement of their wages should be studied separately.[85]

July quotations, which alone were used in the reports, showed an increase of 106.3 per cent.; the wages of quarrymen increased 40 per cent. according to the January quotations, and the July quotations, which were used by the committee, indicated an increase of 70.8 per cent. — Waite, *op. cit.*, pp. 10, 11. Professor Bullock is also severely critical in regard to this point, and his conclusion which follows is certainly a very fair one: "The writer can express no opinion concerning the question whether the January or July quotations are better suited to the purpose of ascertaining the course of wages in occupations where employment is somewhat dependent upon the seasons. Neither can he ascertain the number of series in which the July wages have been followed, and the results of selecting these rates rather than those paid in July. But it seems unfortunate that such an element of uncertainty should have been left in the report." — Bullock, *op. cit.*, p. 211. See also Mitchell, *op. cit.*, p. 281.

[84] This resulted at times in the seeming absurdity of a fractional number of employees, but it is believed to rest on a sound basis.

[85] Mayo-Smith put this very emphatically: "The wages of men, women, and children are entirely different quantities, and are as incapable of addition and averaging as a bushel of potatoes and a pound of butter." — *Quarterly Journal of Economics*, Vol. II, p. 399. Professor Mitchell made separate computations of the wages of men and women for the Civil War period, and the latter showed a relatively smaller increase than the former. See Mitchell, *op. cit.*, p. 301.

Wage series which include the wages of both men and women are also excluded. In such series the proportions of men and women employed vary greatly from year to year. In some years, in fact, no men at all were employed, and in others no women. Such differences would, of course, indicate changes in wages that had not taken place, even when only the wages of men were averaged.

5. The base from which the percentages in the tables of index numbers[86] were computed was not the average for a single year, but an average for the ten years of the decade ending in 1860. Relative wages computed from a single quotation are not as significant as when the percentages are taken from a more reliable base. In the Falkner index numbers average wages for each year were calculated as percentages of the average wage for January, 1860. The two months of the year 1860 which are represented in these quotations were fairly normal. The great disturbances of the year appeared during the late fall and in December.[87] No single year, however, can be trusted to be quite normal. There are always abnormalities in wages in some occupations or industries which are likely to appear in the result and vitiate it. By taking an average for ten years, these abnormalities correct each other and tend to disappear.[88] Index numbers computed from such a base show the movement of wages much more correctly.

[86] A series of index numbers, it seems hardly necessary to explain, means here only a series of relative wages. The base, in this case an average of wages for ten years, is taken as 100, and wages for the other years are computed as percentages of this base, that is, as "proportionately above or below 100." In this way the rise and fall of wages is much more easily measured than from tables of money wages alone.

[87] "The financial crisis in America is in its origin wholly political. Industrially the country has never been so prosperous. Her crops are abundant; the market for them is excellent; trade is sound, though active. Up to a late date advices from the states gave a consistent narrative of steady prosperity. The money market was easy, but not too easy. No one in New York, so far as we can learn, anticipated that a crisis was at hand." — *Economist*, London, December 8, 1860.

[88] The Bureau of Labor, in its new series of relative wages from 1890 to 1903, has taken the average for the years 1890–99 as the base (*Bulletin of the Bureau of Labor*, No. 53). The reason for this is explained in an earlier *Bulletin* (No. 39), in which the base for the index numbers of prices was discussed. "If the price for a single year is chosen [as a base], it is essential that that year be a normal

By way of summary, then, the chief differences between the new tables from the Aldrich Report data and the Falkner tables are: (1) The averages in the former are not "unreal and misleading," because they represent only the wages of laborers in the same occupational groups and of the same grade of skill. (2) Instead of a simple average being taken, each quotation has been given an importance determined by the number of men employed at that rate. (3) The average represents the quotations for both January and July, instead of those for either month alone. (4) All wage series which included women's and children's wages were excluded. (5) An average of the wages for the ten years has been taken as the base from which the percentages for the tables of relative wages were computed.

Passing on now to explain the tables which follow, the first question of importance relates to the occupations which are classed as unskilled. The tables include wages for the following groups: "laborers," teamsters, yardhands, watchmen, "helpers" of all kinds, coal-wheelers, quarrymen, unskilled factory operatives, miners, and agricultural laborers. There are, of course, many other classes of unskilled laborers, but these were the only ones for which a reasonable number of data could be found. That "laborers," yardhands, watchmen, coal-wheelers, quarrymen, "helpers," and agricultural laborers are unskilled will probably not be questioned. There may, however, be some objection to putting teamsters in this class. In Chicago at the present time

one, for if prices are high in the year chosen for the base, any subsequent fall will be unduly emphasized, while, on the other hand, if prices are low, any subsequent rise will be emphasized. Upon examination of the prices involved in this compilation, it was found that a normal condition as regards prices for all commodities was found in none of the years 1890 to 1901. For this reason it was decided that an average price for a number of years would better reflect average or approximately normal conditions, and form a more satisfactory base than would the price for any single year" (p. 231). It would not seem unfair, however, to say that it is at least an open question whether some year from 1890 to 1901 was not quite as normal as the year 1860, though Commissioner Wright would probably not agree to this. See, for an account of conditions in the year 1860, Colonel Wright's address in the *Bulletin de l'institut international,* Vol. VIII, p. 110, and his article, "Cheaper Living and the Rise of Wages," *Forum,* Vol. VI, p. 223. On the same point see the *Aldrich Report,* Vol. I, p. 28.

teamsters' wages are somewhat higher than those of "laborers," but this may be explained by their strong unions, and by the fact, too, that the teamster may be a more efficient man than the laborer and yet not be skilled. Moreover, whatever the condition may be in metropolitan cities today, it seems to be true that from 1840 to 1891 the teamsters in the industries considered were really unskilled men.

A much more difficult question was presented with reference to unskilled factory operatives. Manufacturing processes have changed so greatly during half a century that few occupations have been unskilled throughout the whole period under discussion. For that reason only occupations have been taken which could, during that time be learned by an average person in from one to three weeks.[89] Miners are difficult to classify. Some are skilled, many are totally unskilled, and the data must be carefully studied to discriminate those which should be placed in the unskilled from those which belong in the skilled group.[90]

To follow the movement of wages correctly, it is necessary to have data for each successive year from the same establishments. If wages in one establishment for one year are compared with wages in a different establishment for some other year, a change in rates which is due to different conditions in the two establishments may indicate a change in wages where none has taken place. For this reason no wage series have been used, except in Table IX, which have not furnished continuous records from 1860 to the

[89] Acknowledgment should be made here of the kindness of Mr. Francis H. Silsbee, superintendent of the cotton department in the Pacific Mills at Lawrence, Mass., for answering troublesome inquiries on this point.

[90] That many miners are properly within this class is evident from M. de Rousiers's study of *The Labor Question*, p. 127, from which the following extract is taken: "Miners are recruited . . . . from the least provident, the least capable, the least open to initiative. They are conservative in a bad sense, following meekly along the beaten track, without looking either to the right or to the left. . . . . In this they resemble the skilled workmen in the small trades, whom we have seen clinging obstinately to the past without providing for the future. Often they are even worse, owing to the small amount of scope their work gives to any latent inventive faculties they may possess. The workers in the small trades are often ingenious and on the lookout, and ready to adopt any technical improvements. The miner's work never changes; it does not appeal to his intelligence, and plunges him into routine."

present time. This is not believed to be a point of great practical moment, but it seems wise to eliminate, as far as possible, whatever might be a source of error. That it is not relatively important is proved by Table IX. In this table the averages were taken from all of the data for the various occupations, whether irregular or not. The rate of increase in this table is somewhat higher than that in Table X, for which only regular data were used;[91] but the difference in the two may be explained by the fact that all of the data for "laborers" in city public works were included in Table IX. These data were excluded from Table I and Table X, not because the records were irregular, but because, as will be presently explained, the industry was not a normal one. The rate of increase in the wages of laborers in Table I, when the data from this one industry were included, was more than 10 per cent. greater than the rate of increase shown in the other twelve industries employing "laborers," and their use for Table IX may, entirely apart from any question of irregular wage series,[92] account for the 50 per cent. increase over 1860 that is shown by that table, as against an increase of 44.1 per cent. in Table X.

The distribution of data for the wages of unskilled labor in the Aldrich Report is shown by the conspectus given below. This does not include irregular wage series.

The first eleven tables which are given at the close of this study were all computed from the exhibits in the Aldrich Report. Tables IA and I both represent the wages of common laborers, but Table I is the correct table for this occupation. After studying

[91] The total number of wage series used for Table IX was 171, and for Table X, 133.

[92] By "irregular" wage series are meant series which do not begin in 1860 or before that year, and end in 1891. Where data were wanting only for a few years, it was thought best to use the series and supply the omission in this way: suppose the average wage for 1882 to be $1.50, and $1.65 for 1885, it seems fair to assume that the change — an increase of 15 cents — was gradual, and to distribute the increase along the three years by supplying a wage of $1.55 for the year 1883 and of $1.60 for 1884. Where data were wanting for a period extending over 1860, the increase was assumed to begin in that year. It seemed best to have each establishment represented each year, since the absence of quotations from an establishment in which very high or very low wages prevailed would indicate a fall or rise in wages when none had occurred.

the data for "laborers," it appeared that an unduly large proportion were from the four establishments in one industry — city public works; there were, in fact, many more data from this one industry than from all of the other twelve industries combined. An examination of the two tables will show that city public works

CONSPECTUS OF THE ALDRICH REPORT DATA

I. Occupations

Occupations	Number of States	Number Wage-Series	Number Industries
Laborers	9	26	13
Teamsters	4	9	7
Yard hands	2	6	5
Watchmen	7	14	7
Coal-wheelers	2	3	2
Quarrymen	2	3	2
Unskilled factory operatives	5	34	4
Helpers	6	38	4

II. Industries

Industries	Number of States	Number Wage-Series	Number Establishments
Agricultural implements	1	1	1
Ale, beer, and porter	1	2	1
Books and newspapers	1	1	1
Building trades	5	10	8
City public works	2	3*	2
Cotton goods	2	19	5
Ginghams	1	5	1
Illuminating gas	3	8	3
Leather	2	8	3
Lumber	1	2	1
Metals and metallic goods	6	44	17
Paper	1	2	1
Spice	1	2	1
Stone	3	6	4
White lead	1	2	1
Woolens	2	17	3
Carriages and wagons	1	1	1
Total	10	133	54

* This does not include the series which were excluded from Table I; see above.

furnished data varying from nearly three-fourths of the total number in 1860, to something less than one-half in 1891. With the system of weighting according to the number of employees, to include the city public works data would be to give an exaggerated

emphasis to the returns from this industry. This industry, moreover, is not a normal one. It is one in which wages are not subject to the ordinary laws of competition. Mr. Ethelbert Stewart, who investigated for the Department of Labor the variations in the rates of wages paid under public and private contract, showed by means of carefully prepared tables that "the highest rates of wages paid to unskilled labor are paid to those employed directly by the municipality or state. . . . . With the exception of Boston, all cities included in this investigation fix the rate of wages paid unskilled labor by city ordinance or, as in the case of New York city, by state law."[93] Professor Commons, after a less exhaustive study of the same subject, came to the conclusion that "the city pays for unskilled labor 20 to 70 per cent. higher wages per hour than that paid by contractors on the same class of work. For skilled labor the disparity is not apparently so great."[94] In the *Report on the Subject of the Unemployed*[95] Professor Dewey gives tables which, he says, show "that the rates of wages are higher where the city is the direct employer; and not only is this so, but the rate is often fixed by the municipal government at a price considerably above what may be called the market rate of labor."

Tables II, III, and IV, which present the wages of yard-hands, watchmen, and teamsters, need no special comment.[96] The data from which Table V was computed appeared in some respects

[93] *Bulletin of the Department of Labor*, No. 7, p. 723. Mr. Stewart says further: "As a general statement it may be affirmed that the public, when employing directly by the day, pays the highest prevailing rate of wages for the shortest day's labor."

[94] *Quarterly Journal of Economics*, p. 435. The data in the *Bulletin of the Bureau of Labor* for July, 1904 (see pp. 896–897) do not seem to support this statement, but it seems fair to accept the judgment of men like Mr. Stewart and Professor Commons on a subject they have carefully investigated.

[95] "Investigation and Evidence in Regard to Conditions of Employment upon Public Works," *Report of the Massachusetts Board to Investigate the Subject of the Unemployed*, p. 37.

[96] The industries represented by Table II are cotton goods, gas, ginghams, leather, and lumber; by Table III, cotton goods, gas, ginghams, metals, woolen goods, white lead, and city public works; the latter were not excluded here, because they did not furnish a large enough proportion of the total number of employees in this class to vitiate the result. Table IV represents the industries of ale and beer, cotton goods, building trades, white lead, stone, spice, and sidewalks.

questionable. At times such extremely low wages were quoted as to lead to the conclusion that children must have been among the employees. The number of employees is irregular, and in one case at least (the year 1869) this indicates a disproportionate increase in wages. On the whole, however, there did not seem to be sufficient ground for rejecting so large a collection of data.[97] Table VI is relatively unimportant, because it gives the wages of so small a group.[98] Table VIII represents the wages of "helpers" of blacksmiths, machinists, molders, bricklayers, boiler-makers, carpenters, and a few other laborers of the same industries.[99] The "blacksmith's helpers" formed the largest group. In Table IX are averaged the wages of the following groups of employees from the cotton industry: card-strippers, pickers, picking-room hands, card-tenders, lap-carriers, balers, lapper-tenders; from the leather industry: whiteners, table-hands, setters-out, cellar-hands, blackers, leach-tenders, limers, and bark-grinders; from the woolen industry: cleaners, fullers and giggers, scourers, washers, waste-sorters, shearers, pickers, yarn-carriers, card-cleaners, card-tenders, and dye-house hands. The selection of these occupations has just been discussed. Tables IX and X have been explained in part. The latter is the final summary table for the Aldrich Report data. As has been said, the averages were obtained by giving each of the eight occupational groups represented an importance according to the number of employees which the data indicated for each. This table is believed to be as correct an estimate as can be obtained from existing data of the wages of the unskilled for this period. It represents only one section of the country,[100] and only manufacturing industries, and it may well be charged that as to these the number of data is not large enough to warrant generalizations. When all this is said, however, it remains true that it is the best that can be done with existing collections of data. Table

[97] The data for this table were all from the stone industry, with the exception of one wage series from city public works.

[98] Only three wage series are represented here. They are from the gas and metal industries.

[99] The industries represented are metals, gas, paper, and building trades.

[100] The criticism has already been made that the data in the Aldrich Report are practically all from the North Atlantic states (*supra*, p. 343 and note 73).

IX was computed in order that the effect of the exclusion of certain data on the general result might be shown. Such differences as there are between the rates of increase in this table and Table X are believed to be accounted for by the presence in Table IX of the excluded data in Table IA. While Table IX shows a larger rate of increase for the year 1891 over 1860 than Table X, the increase for 1891 over the average from 1851–60 is almost the same in the two tables. It should be emphasized that Table X and not Table IX is the correct summary for the wages of the unskilled class from the Aldrich Report data.

In Table XI an attempt is made to follow the movement of the wages of common laborers by a series of averages computed from the data in the special report on wages for the Tenth Census.[101] These data do not, of course, extend beyond the year 1880. Simple averages were taken because the number of employees is not among the census returns. If an index number for 1880, the last year for which an average is given, were computed from this table, using the same base, an average for the years 1851–60, that was used for the index numbers in Tables XVI–XXIV, we should have the following comparison between this table and Table I, the latter giving, it will be remembered, a series of weighted averages for the wages of laborers from other data:

WAGES OF LABORERS

Year	Tenth Census	Table I
Average 1851–60.....	100	100
1880.....	133.6	125.5

Attention may be called to the fact that the index number for 1880 from Table XI is almost the same as the number for that

[101] The Weeks Report, which is discussed above, p. 332, 333. The data represent 70 establishments. Returns were used only for those establishments which furnished continuous records from 1860 to 1880. The distribution of establishments was as follows: (1) as to states — Ohio 6, Missouri 5, Pennsylvania 28, Virginia 1, Illinois 3, Indiana 6, Massachusetts 6, Connecticut 7, New Hampshire 5, Michigan 2, New Jersey 3, New York 10, Georgia 1, Wisconsin 3, Maine 2, Kentucky 2; (2) as to industries — breweries 1, brickmaking 3, cigars 3, flour 3, gas 1, flint glass 2, ice 1, iron and steel 15, iron-mining 1, paper 6, pianos 1, pins 1, tanneries 4, textiles 15, woodworking 13.

year from Table X. That the Tenth Census average shows a greater increase in the wages of laborers than the average for Table X may perhaps be explained by defects in the census data,[102] by the difference in the method of averaging, and by the fact that a large number of these data came from western states where economic conditions were less settled than in the East.

Table XII was computed from Table XIII of the Aldrich Report, the data for which were the result of a special investigation by Mr. Weeks.[103] For Table XII a simple average was taken for the following groups: Wages of anthracite coal-miners in Luzerne County, Pennsylvania, and five different sets of returns for iron-ore miners, including blasters and drillers, in the New Jersey ore district; unskilled laborers in ore-mining at Cornwall, New Jersey; ore-miners in the Port Henry District, New York, and in the Oxford Mines, New Jersey. There is a serious objection to the data in that quotations are not always for the same month, nor are the same number of quotations given for each year. Where wages were given in the form of "piece rates," they were, of course, not used, since it is impossible to obtain day wages exactly from such data. On the whole, the table is of value rather for the additional light it may throw on the movement of wages than for any positive information it may give regarding the miner's income.

Table XIII presents with almost no change the summary average of the wages of agricultural laborers from 1866 to 1902 furnished by the Department of Agriculture.[104] Wages for 1861 were estimated on the basis of a statement made by the department that wages for 1866 were 50 per cent. higher than in 1861.[105] The estimate for 1860 was made on the assumption that

[102] Attention has already been called to these defects, p. 332.

[103] The great mass of the exhibits in the Aldrich Report are included in Table XII. Table XIII (Vol. IV, pp. 1561–72) gives the "Rates of Wages for 52 Years in the Coal, Iron, Glass, and Pottery Industries."

[104] "Wages of Farm Labor in the United States," Miscellaneous Series, *Bulletin No. 26*, U. S. Department of Agriculture.

[105] *Annual Report*, U. S. Department of Agriculture, 1866. In discussing the investigation that had been recently made, it was said: "The result shows an increase of the rates of wages in five years amounting to about 50 per cent" (p. 81).

agricultural wages had at least increased no more than the wages of other laborers in this class, and the wage for 1861 in Table XIII was assumed to be an increase of 1.9 per cent. over the wage for 1860.

Statistics furnished by the Department of Labor were used in computing Tables XIV and XV. Table XIV represents the wages of three unskilled occupations from the data in *Bulletin* No. 18, the result of an investigation made in twelve cities. It has already been pointed out that the averages from such data must be larger than they would be for the country at large, and also that the scope of the investigation was so narrow that the results are not very significant.[106] On the other hand, Table XV is computed from the data in *Bulletin* No. 53, which were obtained by the department's very thorough investigation of last year. The data for common laborers represent 410 establishments and more than 23,000 employees.[107]

Tables XVI–XXIV give index numbers showing relative wages in eight occupations, and a summary for the period 1840–91. The index numbers are given for the period previous to 1850, but they are not considered of great value, since the data for these years are too few for a definite estimate. The base for these percentages, it should be emphasized, is not, as in the Falkner tables, the year 1860, but the average for the decade 1851–60. In the note accompanying these tables a series of index numbers is given for purposes of comparison with the Falkner tables. These were computed from Table X, using the Falkner base, the single year 1860. These are compared below with some index numbers made by Mr. Bowley from the same data for several years during

[106] *Supra*, p. 337.

[107] It will be noted that the average wage for "laborers" for 1890 is $1.37 in Table I, $1.49 in Table I A, $1.57 in Table XIV, and $1.48 in Table XV. The difference between Table I and Table I A has already been explained; Table XIV is based on returns only from the large industrial centers, and the Bureau of Labor has itself called attention to the fact that it is unduly large (*supra*, p. —); Table XV is probably the correct estimate, since it is based on a much larger collection of data than any of the others. But while Table XV doubtless estimates the average wage in 1890 more correctly than Table I, the estimate in the latter is the one to use for purposes of comparison with the earlier years, since it represents the same section of the country and the same establishments.

the period. Mr. Bowley's computations were for five selected industries,[108] Professor Falkner's were for all industries, and those from Table X represent, of course, only the wages of unskilled labor.

	Bowley	Falkner Simple Average	Falkner Weighted Average	Index Numbers from Table X (1860 base)
1860.....	100	100	100	100
1879.....	120	139.9	139.4	125.2
1880.....	124	141.5	143	127.1
1883.....	139	152.7	159.2	139.8
1886.....	139	150.9	155.8	140.7
1891.....	148	160.7	168.6	144.1

In conclusion, the question must be fairly raised: What do these tables show regarding the movement of the wages of unskilled labor during the latter half of the last century? No attempt has been made to average the data from the different sources. Everything has been given that seemed likely to aid in making a final and definite estimate, but the temptation to take an average from all of the different tables for a final summary has been resisted, because they are, as has been pointed out, of very unequal value. A weighted average would have been impossible, since the number of employees is not given in all of the tables, and to take a simple average of such data, giving all an equal importance, would have led to a meaningless result. It seems possible, without such a summary, to draw certain very definite conclusions from the tables as they are. The index number for 1890 in Table XXIV is 148.3, indicating, of course, that the average of the wages in eight unskilled occupations was 48.3 per cent. higher in that year than the average for the years 1851–60. Table XV shows that the wages of common laborers remained practically unchanged from 1890 to 1900. From these two tables the conclusion may be fairly drawn that the increase in the wages of this class from the decade following 1850 to the close of the century was approximately 50 per cent. The wages of miners show an increase of 52.1 per cent. in 1890 over 1851–60. For agricultural

[108] Building trades, metals, cotton, wool, and textiles. — *Economic Journal* Vol. V, p. 379.

laborers no data are given previous to 1860, and the increase must be computed from 1860. In 1899[109] the wages of this class had increased only 4.1 per cent. and computing the wages of common laborers from the same base, using Tables I and XV, we have the following comparison:

	Agricultural Laborers	Common Laborers
1860	100	100
1890	94.8	137.1
1899	104.1	137.5

It is hoped that, at a later date, these tables may be supplemented by others which will estimate changes in real wages. This involves, of course, an extended study of statistics of prices and unemployment. The amount of unemployment is undoubtedly greater in this class than in any other — a fact which the late Charles B. Spahr attributed[110] largely to the moral inefficiency of its members. The great difficulty, however, in the way of estimating real wages for the unskilled is the lack of statistics of retail prices for any considerable period of years. The purchases of this group are made in exceedingly small quantities, and it is, of course, retail and not wholesale prices which concern them.

No attempt will be made here to discuss the significance of the changes indicated in these tables of wages, or to make any explanation of the causes of these changes. An effort has been made to present the facts as fairly as possible. Whether or not the unskilled man has been the victim of the industrial system evolved during the last century is a question on which the facts may be allowed to speak without comment.

[110] *The Present Distribution of Wealth*, p. 102.

[109] The average wage for agricultural laborers is not given for the year 1900.

TABLES I–X[1]

WAGES IN EIGHT UNSKILLED OCCUPATIONS, 1840–91

(Aldrich Report Data)

YEAR	TABLE Ia		TABLE I		TABLE II		TABLE III	
	WAGES OF LABORERS—INCLUDING CITY PUBLIC WORKS DATA		WAGES OF LABORERS—CORRECT DATA		WAGES OF YARD HANDS		WAGES OF WATCHMEN	
	Number	Average Wage	Number	Average Wage	Number	Average Wage	Number	Average Wage
1840.....	21	$0.995	21	$0.995	5	$0.625*	4	$1.10*
1841.....	25.5	1.00	25.5	1.00	6	0.59*	4.5	1.10*
1842.....	26	0.93	26	0.93	11	0.695	11	1.01*
1843.....	19.5	0.92	19.5	0.92	8	0.76	12	0.96*
1844.....	42	0.96	42	0.96	8.5	0.79	13.5	0.99
1845.....	45.5	0.91	45.5	0.91	8.5	0.815	16.5	0.955
1846.....	83	0.89	83	0.89	11.5	0.89	15.5	0.99
1847.....	79	0.89	79	0.89	14.5	0.89	13	0.925
1848.....	94	0.91	94	0.91	18.5	0.89	15.5	0.935
1849.....	211.5	0.91	211.5	0.91	18	0.91	15.5	0.94
1850.....	188.5	0.90	188.5	0.90	23	0.91	16	0.94
1851.....	213	0.91	213	0.91	20	0.905	16	0.97
1852.....	256	0.93	256	0.93	25.5	0.91	18	0.98
1853.....	246.5	0.96	246.5	0.96	30	0.93	23	0.96
1854.....	307	0.95	286	0.93	32.5	0.95	26.5	0.99
1855.....	363.5	0.98	327	0.97	31	0.98	30.5	1.04
1856.....	353.5	0.99	325	0.98	31	0.97	32.5	1.04
1857.....	714.5	1.13	327	0.99	43	0.965	33	1.04
1858.....	1299	1.01	343	1.015	43	0.93	37	1.01
1859.....	2119	1.04	442	1.01	54	1.01	36.5	1.01
1860.....	1906	1.01	472.5	1.01	54.5	1.02	34	1.03
1861.....	1737	0.98	503	1.01	56.5	1.08	38	1.01
1862.....	1413.5	1.02	483	1.02	44.5	1.075	39	1.02
1863.....	1207	1.25	362.5	1.225	45	1.12	39.5	1.06
1864.....	1120	1.56	359	1.41	41.5	1.39	37	1.28
1865.....	839	1.76	263	1.60	47	1.545	38.5	1.44
1866.....	812	1.78	297	1.61	52	1.55	35.5	1.56
1867.....	6405	1.76	302	1.57	61.5	1.585	36.5	1.58
1868.....	597	1.745	340.5	1.60	71	1.49	39.	1.58
1869.....	1179.5	1.85	364	1.65	76	1.58	40.5	1.595
1870.....	1142.5	2.02	335.5	1.62	84	1.62	41	1.57
1871.....	1249.5	1.90	377.5	1.63	78.5	1.54	40	1.63
1872.....	1300	1.84	406	1.63	81.5	1.58	42.5	1.64
1873.....	1262	1.845	410.5	1.635	103	1.56	42.5	1.68
1874.....	1029.5	1.82	408	1.625	72	1.56	44	1.67
1875.....	908.5	1.73	430.5	1.53	65.5	1.43	47.5	1.66
1876.....	888	1.66	373.5	1.44	53	1.39	47	1.63
1877.....	737.5	1.40	341	1.34	47	1.33	47	1.55
1878.....	645	1.33	384	1.27	47	1.29	46	1.55
1879.....	675.5	1.25	378	1.245	60	1.20	38.5	1.50
1880.....	700.5	1.27	468	1.23	55.5	1.26	36	1.49
1881.....	917	1.32	577	1.26	56	1.32	40.5	1.53
1882.....	1023.5	1.43	605	1.29	74	1.33	41	1.55
1883.....	1056	1.45	643.5	1.33	64.5	1.32	39.5	1.52
1884.....	1050	1.46	605	1.34	68.5	1.29	38	1.55
1885.....	1075.5	1.47	596	1.31	71	1.26	35	1.545
1886.....	973	1.47	541.5	1.32	58.5	1.31	37	1.56
1887.....	940	1.47	576.5	1.34	59	1.275	36.5	1.585
1888.....	1016	1.51	592	1.39	52.5	1.28	37.5	1.56
1889.....	931.5	1.50	549.5	1.38	61.5	1.295	35.5	1.60
1890.....	947.5	1.49	585.5	1.37	58	1.32	38	1.57
1891.....	1080.5	1 49	632	1.385	74.5	1.34	39	1.57

* Averages which represented only one establishment are starred.

[1] In all of the tables, except where otherwise specified, wages for the "Greenback period" are given in currency.

TABLES I–X.— *Continued*

Year	TABLE IV		TABLE V		TABLE VI		TABLE VII	
	Wages of Teamsters		Wages of Quarrymen		Wages of Coal-Heavers		Wages of Helpers	
	Number	Average Wage	Number	Average Wage	Number	Average Wage	Number	Average Wage
1840.....	2	$1.50*	....	....	....	....	10.5	$0.91
1841.....	1	1.50*	....	....	....	....	13	0.85
1842.....	2	1.48*	47	$0.86	....	....	11.5	0.875
1843.....	1	1.50*	38	0.67	2	$0.75*	18.5	0.86
1844.....	1	1.50*	149.5	0.78	3	0.81*	25.5	0.935
1845.....	2.5	1.48*	193.5	0.85	4	0.875*	32	0.82
1846.....	2.5	1.37*	109.5	0.96	2	0.97*	23.5	0.85
1847.....	2	1.52*	154.5	0.93	2.5	1.02*	33.5	0.92
1848.....	4	1.365*	132	6.88	2	1.125*	44	0.91
1849.....	6	1.57	158.5	0.89	18	1.28	73	0.99
1850.....	8.5	1.20	201.5	0.88	12.5	1.26	77.5	0.96
1851.....	5.5	1.16	626	0.89	15	1.19	92	0.905
1852.....	5	1.145	530.5	0.90	5.5	1.25	128.5	0.93
1853.....	5	1.155	786.5	0.95	7	1.01	131.5	1.00
1854.....	7.5	1.09	615	1.09	8	0.99	162.5	0.99
1855.....	13	1.07	290	1.07	11	1.06	161	0.995
1856.....	15	1.04	339.5	1.11	10	1.13	189	1.00
1857.....	15	1.07	310.5	1.03	12	1.00	187.5	1.06
1858.....	18	1.10	236	1.06	14.5	1.16	152	1.06
1859.....	20.5	1.075	343	1.05	12.5	1.085	207	1.07
1860.....	21.5	1.13	504.5	1.08	13	0.985	213.5	1.08
1861.....	23.5	1.11	470	1.10	11.5	1.02	242.5	1.13
1862.....	22	1.12	374	1.20	14.5	1.11	235.5	1.14
1863.....	23.5	1.18	343.5	1.41	13.5	1.29	221	1.23
1864.....	21.5	1.35	391	1.46	28.5	1.43	329	1.40
1865.....	24	1.48	357	1.66	20	1.68	268.5	1.56
1866.....	23	1.59	475	1.69	18.5	1.715	258.5	1.65
1867.....	23.5	1.59	657.5	1.64	22.5	1.665	250	1.67
1868.....	22.5	1.62	450.0	1.80	21.5	1.64	213.5	1.72
1869.....	23.5	1.63	915.5	2.17	21.	1.66	269	1.82
1870.....	26	1.65	949	2.11	25	1.72	256	1.85
1871.....	27	1.68	869.5	2.11	26	1.72	249.5	1.77
1872.....	30	1.69	623	2 30	31.5	1.79	280	1.81
1873.....	26.5	1.68	725	2.07	31	1.805	237	1.79
1874.....	25.5	1.70	567	1.97	20	1.64	216.5	1.74
1875.....	27	1.60	423	1.73	27	1.61	208.5	1.68
1876.....	27	1.58	275	1.59	24	1.52	209.5	1.60
1877.....	27	1.54	436	1.35	20	1.51	217.5	1.43
1878.....	28	1.52	354	1.37	25	1.45	221.5	1.48
1879.....	27	1.48	436.5	1.29	26	1.34	229.5	1.42
1880.....	30.5	1.50	516.5	1.32	37.5	1.535	323	1.44
1881.....	32	1.50	511.5	1.38	27	1.60	368.5	1.49
1882.....	34.5	1.51	569.5	1.50	21	1.61	405.5	1.56
1883.....	34.5	1.55	576	1.52	31	1.52	403.5	1.63
1884.....	34.5	1.58	551.5	1.50	23.5	1.47	330.5	1.57
1885.....	36	1.54	497.5	1.47	28	1.47	292	1.59
1886.....	35.5	1.55	529	1.64	27.5	1.47	282.5	1.59
1887.....	33	1.62	502	1.48	24	1.50	313.5	1.54
1888.....	30.5	1.70	490.5	1.53	12.5	1.50	286	1.55
1889.....	34.5	1.69	496.5	1.54	19	1.50	319.5	1.535
1890.....	32.5	1.70	494.5	1.62	23	1.56	338	1.53
1891.....	29	1.69	496	1.62	18	1.51	438.5	1.58

* Averages which represented only one establishment are starred.

Tables I–X.— *Continued*

Year	TABLE VIII		TABLE IX		TABLE X	
	Wages of Unskilled Factory Operatives		Wages of Unskilled Labor—Irregular Data Included		Wages of Unskilled Labor—Summary	
	Number	Average Wage	Number	Average Wage	Number	Average Wage
1840	2.5	$0.64*	47	$0.95	45	$0.95
1841	4	0.63*	56.5	0.91	54	0.91
1842	14.5	0.69	131	0.88	123	0.86
1843	12.5	0.65	119	0.81	111.5	0.79
1844	14.5	0.64	268	0.84	257.5	0.83
1845	14.5	0.62	327.5	0.86	317	0.85
1846	18.5	0.67	278	0.92	266	0.91
1847	15	0.675	322.5	0.91	314	0.91
1848	18	0.70	336	0.90	328	0.89
1849	26	0.75	534	0.93	526.5	0.93
1850	44.5	0.80	580	0.91	572	0.91
1851	51	0.75	1047	0.90	1038.5	0.895
1852	54	0.755	1032	0.91	1023	0.91
1853	56	0.77	1332	0.95	1285.5	0.95
1854	57.5	0.78	1250.5	1.02	1195.5	1.02
1855	63.5	0.79	990.5	1.00	927	1.00
1856	80	0.85	1075.5	1.03	1022	1.02
1857	78	0.85	1416.5	1.07	1006	1.01
1858	89.5	0.815	1914	1.01	933	1.01
1859	126	0.815	2965.5	1.03	1241.5	1.01
1860	116.5	0.79	2910	1.02	1430	1.03
1861	112.5	0.82	2736	1.01	1457.5	1.05
1862	127	0.83	2311.5	1.055	1339.5	1.09
1863	106	0.95	2097.5	1.26	1154.5	1.245
1864	117.5	1.10	2193.5	1.48	1325	1.40
1865	113.5	1.29	1813.5	1.67	1131.5	1.57
1866	124	1.34	1912	1.71	1283.5	1.62
1867	120.5	1.34	1915	1.68	1474	1.60
1868	131.5	1.31	1638	1.72	1290	1.65
1869	132.5	1.33	2809	1.93	1842	1.91[1]
1870	160	1.33	2792	1.975	1876.5	1.89
1871	173	1.35	2839	1.93	1841	1.87
1872	172.5	1.36	2695	1.93	1667	1.88
1873	175	1.36	2759	1.895	1750.5	1.81
1874	167	1.29	2292	1.87	1520	1.70
1875	167.5	1.22	2007.5	1.70	1396.5	1.58
1876	169	1.18	1827.5	1.61	1476	1.48
1877	163	1.15	1805.5	1.40	1298.5	1.35
1878	165	1.16	1631.5	1.37	1270.5	1.34
1879	158.5	1.13	1789	1.31	1354	1.29
1880	147	1.17	1998.5	1.34	1614	1.31
1881	153	1.20	2263	1.385	1765.5	1.355
1882	151.5	1.19	2480.5	1.47	1902	1.42
1883	155	1.23	2541	1.495	1947.5	1.44
1884	144.5	1.24	2436.5	1.49	1796	1.43
1885	142	1.18	2375.5	1.48	1697.5	1.40
1886	152	1.205	2281	1.525	1663.5	1.45
1887	160.5	1.21	2260.5	1.48	1705	1.415
1888	156	1.21	2275	1.52	1657.5	1.45
1889	138.5	1.20	2226.5	1.515	1654.5	1.45
1890	151.5	1.18	2271	1.52	1721	1.47
1891	161	1.215	2528	1.53	1888	1.485

* Averages which represented only one establishment are starred.

[1] This large increase over 1868 is an unfortunate result of having so few data. The abnormal increase shown is due to a sudden change in the numbers and wages of quarrymen (Table V) who form a much larger proportion of the total number of laborers in 1869 than in 1868. If a new average is taken, omitting the wages of quarrymen for both years, the increase is 6 instead of 26 cents. The change indicated is not therefore true of wages in general, but is due to special circumstances affecting the wages of quarrymen.

TABLE XI

Wages of Common Laborers, 1829–30

(Data from Tenth Census)

Year	Wage	Year	Wage	Year	Wage	Year	Wage
1829	$0.94	1842	$0.83	1855	$0.98	1868	$1.49
1830	1.00*	1843	0.77	1856	0.99	1869	1.52
1831	1.00*	1844	0.90½	1857	0.99½	1870	1.48
1832	1.00*	1845	0.90	1858	0.97	1871	1.49½
1833	0.85	1846	0.86	1859	1.00	1872	1.51
1834	0.90	1847	0.82½	1860	1.03	1873	1.51
1835	0.75	1848	0.85	1861	1.03	1874	1.43
1836	1.37½	1849	0.90½	1862	1.07	1875	1.39
1837	1.75*	1850	0.92	1863	1.21	1876	1.35
1838	1.75*	1851	0.93	1864	1.43	1877	1.26½
1839	0.99	1852	0.94	1865	1.47	1878	1.24
1840	0.875	1853	0.95	1866	1.52	1879	1.25
1841	0.81	1854	0.98	1867	1.63	1880	1.31

*The quotations that are starred represent only one establishment, and are not very significant for that reason. An average from data in the *Report of the Massachusetts Bureau of Labor* for 1885 gives $0.79 for 1838, $0.79 for 1837, and $0.73⅓ for 1830 as the wage for this class in Massachusetts.

TABLE XII

Wages of Miners, 1840–92

(Data from Table XIII, Aldrich Report)

Year	Wage	Year	Wage	Year	Wage	Year	Wage
1840	$0.80	1854	$1.06	1867	$1.72	1880	$1.50
1841	0.76	1855	1.02	1868	1.89	1881	1.57
1842	0.82	1856	1.05½	1869	1.98	1882	1.72½
1843	0.80	1857	1.05	1870	1.90	1883	1.57
1844	0.79	1858	0.93	1871	1.85	1884	1.46
1845	0.82	1859	1.06	1872	1.82	1885	1.37
1846	0.84	1860	1.03	1873	2.07½	1886	1.50
1847	0.83	1861	1.01	1874	1.93½	1887	1.61
1848	0.82½	1862	1.09	1875	1.50	1888	1.58½
1849	0.81	1863	1.38	1876	1.41	1889	1.55
1850	0.85	1864	2.02	1877	1.25	1890	1.60
1851	0.89½	1865	1.77	1878	1.27	1891	1.52
1852	0.93	1866	1.63	1879	1.25	1892	1.78
1853	0.96						

TABLE XIII

Wages of Agricultural Laborers, 1860–1902

(Data from Publications of the Department of Agriculture)

Year	Wage	Year	Wage	Year	Wage	Year	Wage
1860	$0.97*	1879	$0.81	1890	$0.92	1895	$0.81
1861	0.99*	1882	0.93	1892	0.92	1898	0.96
1866	1.49	1885	0.91	1893	0.89	1899	1.01
1869	1.41	1888	0.92	1894	0.81	1902	1.13
1875	1.08						

* Wages for these two years estimated. See p. 357.

TABLE XIV

Wages in Three Unskilled Occupations, 1870–98

(Bureau of Labor data from Twelve Cities)*

	A	B	C	D		A	B	C	D
	Laborers	Helpers	Teamsters	Average		Laborers	Helpers	Teamsters	Average
	$	$	$	$		$	$	$	$
1870	1.43	1.42	1.59	1.48	1885	1.55	1.53	1.89	1.66
1871	1.56	1.53	1.74	1.61	1886	1.56	1.53	1.92½	1.67
1872	1.58	1.56	1.78	1.64	1887	1.58½	1.54½	1.94	1.69
1873	1.54	1.51	1.72½	1.59	1888	1.59	1.56	1.95	1.70
1874	1.52	1.50	1.74	1.59	1889	1.58	1.56	1.94	1.69
1875	1.48	1.47	1.71	1.55	1890	1.57	1.55	1.95	1.69
1876	1.44	1.41	1.71	1.52	1891	1.56½	1.54	1.95	1.68½
1877	1.44½	1.46½	1.79	1.57	1892	1.55	1.55	1.95	1.68
1878	1.45	1.53	1.86	1.61	1893	1.58	1.52½	1.90½	1.67
1876	1.47½	1.54	1.87½	1.63	1894	1.55½	1.50	1.90	1.65
1880	1.49	1.53	1.89	1.64	1895	1.55	1.49	1.90	1.65
1881	1.52	1.54	1.88	1.65	1896	1.55½	1.49	1.89	1.64½
1882	1.53	1.56	1.89	1.66	1897	1.54	1.49	1.88	1.64
1883	1.56	1.55½	1.91	1.675	1898	1.55	1.50	1.88½	1.64½
1884	1.56	1.55	1.89	1.67					

* Wages in gold for the years 1870–78. These averages computed from data in *Bulletin* No. 18 of the Department of Labor.

TABLE XV

Wages of Common Laborers, 1890–1900 *

Year	Average Number	Average Wage	Year	Average Number	Average Wage
1890	19,386	$1.4811	1896	18,701	$1.4420
1891	19,748	1.4729	1897	18,398	1.4452
1892	19,632	1.5086	1898	19,837	1.4606
1893	18,922	1.5109	1899	21,640	1.4850
1894	18,162	1.4330	1900	23,171	1.4821
1895	17,932	1.4353			

* These averages computed from data in *Bulletin* No. 53 of the Department of Labor.

TABLES XVI–XX

Relative Wages in Eight Unskilled Occupations, 1840–91

(In these index numbers 100 = the average for 1851–60)[2]

Index Numbers	Table XVI	Table XVII	Table XVIII	Table XIX	Table XX	Table XXI	Table XXII	Table XXIII	Table XXIV
	General Laborers	Teamsters	Yard Hands	Watchmen	Coal-Wheelers	Quarrymen	Unskilled Factory Operatives	Helpers	Unskilled Labor 8 Occupations Summary
1840	101.5	137.6	64.4	108.9	....	....	80.0	89.2	95.9
1841	102.0	137.6	60.8	108.9	....	....	78.7	83.3	91.9
1842	94.8	135.7	71.6	100.0	....	85.1	86.2	85.7	86.8
1843	93.8	137.6	78.3	95.0	68.8	66.3	81.2	84.3	79.7
1844	97.9	137.6	81.4	98.0	74.3	77.2	80.0	91.6	83.8
1845	92.8	135.7	84.0	94.5	80.2	84.1	77.5	80.3	85.8
1846	90.8	125.6	91.7	98.0	88.9	95.0	83.7	83.3	91.9
1847	90.8	139.4	91.7	91.5	93.5	92.0	84.3	90.1	91.9
1848	92.8	125.2	91.7	92.5	103.2	87.1	87.5	89.2	89.8
1849	92.8	144.0	93.8	93.0	117.4	88.1	93.7	97.0	93.9
1850	91.8	110.0	93.8	93.0	115.5	87.1	100.0	94.1	91.9
1851	92.8	106.4	93.2	96.0	109.1	88.1	93.7	88.7	90.4
1852	94.8	105.0	93.8	97.0	114.6	89.1	94.3	91.1	91.9
1853	97.9	105.9	95.8	95.0	92.6	94.0	96.2	98.0	95.9
1854	94.8	100.0	97.9	98.0	90.8	107.9	97.5	97.0	103.0
1855	98.9	98.1	101.0	102.9	97.2	105.9	98.7	97.5	101.0
1856	100.0	95.4	100.0	102.9	103.6	109.9	106.2	98.0	103.0
1857	101.0	98.1	99.4	102.9	91.7	101.9	106.2	103.9	102.0
1858	103.5	100.9	95.8	100.0	106.4	104.9	101.8	103.9	102.0
1859	103.0	98.6	104.1	100.0	99.5	103.9	101.8	104.9	102.0
1860	103.0	103.6	105.1	101.9	90.3	106.9	98.7	105.8	104.0
1861	103.0	101.8	111.3	100.0	93.5	108.9	102.5	110.7	106.0
1862	104.0	102.7	110.8	100.9	101.8	118.8	103.7	111.7	110.1
1863	125.0	108.2	115.4	104.9	118.3	139.6	118.7	120.5	125.7
1864	143.8	123.8	143.2	126.7	131.1	144.5	137.5	137.2	141.4
1865	163.2	135.7	159.2	142.5	154.1	164.3	161.2	152.9	158.5
1866	164.2	145.8	159.7	154.4	157.3	167.3	167.5	161.7	163.6
1867	160.2	145.8	163.4	156.4	152.7	162.3	167.5	163.7	161.6
1868	163.2	148.6	153.6	156.4	150.4	178.2	163.7	168.6	166.6
1869	168.3	149.5	162.8	157.9	152.2	214.8	166.2	178.4	192.9 [1]
1870	165.3	151.3	167.0	155.4	157.7	208.9	166.2	181.3	190.9
1871	166.3	154.1	158.7	161.3	157.7	208.9	168.7	173.5	188.8
1872	166.3	155.0	162.8	162.3	164.2	227.7	170.0	177.4	189.8
1873	166.8	154.1	160.8	166.3	165.5	204.9	170.0	175.4	182.8
1874	165.8	155.9	160.8	165.3	150.4	195.0	161.2	170.5	171.7
1875	156.1	146.7	147.4	164.3	147.7	171.2	152.5	164.7	159.5
1876	146.9	144.9	143.2	161.3	139.4	157.4	147.5	156.8	149.4
1877	136.7	141.2	137.1	153.4	138.5	133.6	143.7	140.1	136.3
1878	129.5	138.5	132.9	153.4	133.0	135.6	145.0	145.0	135.3
1879	127.0	135.7	123.7	148.5	122.9	127.7	141.2	139.2	130.3
1880	125.5	137.6	129.8	147.5	140.8	130.6	146.2	141.1	132.3
1881	128.5	137.6	136.0	151.4	146.7	136.6	150.0	146.0	136.8
1882	131.6	138.5	137.1	153.4	147.7	148.5	148.7	152.9	143.4
1883	135.7	142.2	136.0	150.4	139.4	150.4	153.7	159.8	145.4
1884	136.7	144.9	132.9	153.4	134.8	148.5	155.0	153.9	144.4
1885	133.6	141.2	129.8	152.9	134.8	145.5	147.5	155.8	141.4
1886	134.6	142.2	135.0	154.4	134.8	162.3	150.6	155.8	146.4
1887	136.7	148.6	131.4	156.9	137.6	146.5	151.2	150.9	142.9
1888	141.8	155.9	131.9	154.4	137.6	151.4	151.2	151.9	146.4
1889	140.8	155.0	133.5	158.4	137.6	152.4	150.0	150.4	146.4
1890	139.7	155.9	136.0	155.4	143.1	160.3	147.5	150.0	148.3
1891	141.3	155.0	138.1	155.4	138.5	160.3	151.8	154.9	150.0

[1] See note to Table X in regard to the change in wages shown for 1869.

[2] To avoid a mistaken comparison between Table XXIV and the Falkner summary, in which a different base was used, the following table of relative wages has been computed, using the same base that

TABLE OF RELATIVE WAGES, 1860–91
(100 = average for year 1860)

1860	1861	1862	1863	1864	1865	1866	1867	1868	1869		
100	101.9	105.8	120.8	135.9	152.4	157.2	155.3	160.1	185.4		
1870	1871	1872	1873	1874	1875	1876	1877	1878	1879		
183.4	181.5	182.5	175.7	165	153.3	143.6	131	130	125.2		
1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890	1891
127.1	131.5	137.8	139.8	138.8	135.9	140.7	137.3	140.7	140.7	142.7	144.1

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was used by Professor Falkner — the average for the year 1860. This table may be properly compared with
e Falkner summary.